

## 1. BOSC 2017 Nominations

### Self Nomination:

Yes

### Nominator Information

First Name

Last Name

Nominator Title

Street Address

City

State

Postal Code

Email Address

Phone Number

Mobile Phone

### Nominee Information

First Name

Elena

Last Name

Irwin

Nominee Title

Professor

Street Address

Exemption 6

### Employment Information

Place of Employment/Work:

Ohio State University

**Work Street Address**

2120 Fyffe Rd

**Work City**

Columbus

**Work State:**

OH

**Work Postal Code**

43210

**Work Phone Number**

614-292-6449

**Work Email Address**

irwin.78@osu.edu

**Sector**

Academia

**Qualifications****Primary Area(s) of Expertise**

Urban and regional economics, environmental economics, economics of land use, urbanization and growth, community quality of life, integrated modeling of economic and environmental systems, well-being metrics, cost benefit analysis.

**Committee Preference(s)**

Sustainable and Healthy Communities Subcommittee

**Statement of Interest**

As an economist, I am fundamentally interested in how individuals and communities can most efficiently use environmental resources to generate the great benefits for themselves and society. Key research questions relating to this broad theme include: how resources currently being used by individuals and business to produce value for society? What are the benefits and costs of how resources are currently distributed and used? What are the unintended consequences and where are the opportunities for improving resource efficiency? My research interests focus on land as a critical resource that is used to produce many essential goods and services, including food, energy, housing, transportation, and questions regarding optimal land allocation to these uses and the spatial distribution of land use. My interests span both urban and rural land use policy questions, e.g., what are the best strategies for urban redevelopment? What are the effects of zoning on housing markets and urbanization? How do voluntary conservation programs influence farmers' land management decisions? I am also very interested in the role of technological innovation—e.g., autonomous vehicles, sensor technologies, resource extraction, energy generation—and how these innovations may impact regional economic growth, urbanization, ecosystem services, and quality of life.

**Skills/qualifications related to committee preference(s) specified**

With over 5700 Google scholar citations to-date and publications in top-ranked field and interdisciplinary journals, I have a well-established track record of producing high-quality, impactful research (<https://scholar.google.com>). My research program has been well-funded, having served as PI or Co-PI on competitive grants from NSF, USDA, NOAA, and other sources totally over \$11 million. I have been invited to serve in an advisory role to multiple national associations, including as a current board member of the Association of Environmental and Resource Economists, past member of the National Research Council committee on Advancing Land Change Modeling, and board member of the North American Regional Science Council. In addition, I served as a member of the US EPA BOSC Subcommittee for the Sustainable and Healthy Communities Program from 2014-2016. I have extensive experience working on interdisciplinary teams and have enjoyed productive collaborations with scientists from many other

disciplines, including engineering, environmental and agricultural sciences, behavioral science, and public health. I am currently the faculty director of a new multi-million-dollar Sustainable and Resilient Economy research initiative at Ohio State University that has hired 19 new faculty to-date and is building research capacity in food-energy-water systems, circular economy, smart communities, and enterprise resilience. In this capacity I have had considerable experience collaborating with external research partners from both the private and public sectors. I am also the co-founder of the Environment, Economy, Development and Sustainability (EEDS) major at Ohio State.

**Other Relevant Information**

**CV/Resume URL**

**2. CV/Resume**

**Please upload your CV/ Resume.**

[Irwin\\_long\\_vitae\\_2017.pdf](#)

**3.**

**BOSC Nomination**

Jun 28, 2017 07:43:16 Success: Email Sent to: tracy.tom@epa.gov

**4. Thank You for your Submission!**

**Elena G. Irwin**  
**Curriculum Vita**

Department of Agricultural, Environmental, and Development Economics, The Ohio State University  
2120 Fyffe Road, Columbus, OH 43210, tel: 614-292-6449, email: irwin.78@osu.edu

**Professional Experience**

- 2015-current    Faculty Director, Sustainable and Resilient Economy Program, Discovery Themes Initiative, Ohio State University (50%)
- 2015-current    Professor, Department of Agricultural, Environmental & Development Economics, Ohio State University (50%)
- 2010-2015       Professor, Department of Agricultural, Environmental & Development Economics, Ohio State University
- 2005-2010       Associate Professor, Department of Agricultural, Environmental & Development Economics, Ohio State University
- 2007-2008       Visiting Professor, Professorship for Environmental Economics and Policy, ETH Zürich and Social and Industrial Ecology, Dept. of Geography, University of Zürich
- 1998-2005       Assistant Professor, Department of Agricultural, Environmental & Development Economics, Ohio State University

**Education**

University of Maryland, College Park, MD. Aug 1993 – Oct 1998. Ph.D., Agricultural and Resource Economics. Dissertation Title: “Do Spatial Externalities Matter? The Role of Endogenous Interactions in the Evolution of Land Use Pattern.” Advisor: Nancy Bockstael.

Washington University, St. Louis, MO. AB, 1988. Major fields: German and History.

**Areas of Interest**

Economics of land use change; urbanization; housing and land markets; coupled human-natural systems; integrated modeling and sustainability assessment; applied spatial analysis and econometrics

**Synergistic Activities**

**Faculty Director, Sustainable and Resilient Economy Program.** Lead an interdisciplinary research program to develop research capacity in sustainability science and assessment. Research areas include coupled human-natural systems modeling, food-energy-water systems, sustainable urban systems, ecosystem services.

**Member, National Science Foundation Advisory Committee for Environmental Research and Education subcommittee on Sustainable Urban Systems.** Develop a white paper that articulates a compelling research agenda that will transform understanding of sustainable urban systems, including a clear statement of the need for long-term research, a synthesis of the current work, and short and long-term research priorities.

**Member, Board of the Association of Environmental and Resource Economists.** Provide guidance and oversight to national membership organization of over 500 environmental and resource economists working in academia, public and private sectors.

**Co-PI, Baltimore Ecosystem Study (BES) Long Term Ecological Research (LTER) Site.** Work with interdisciplinary team to develop empirical and spatial simulation models of land use and hydrodynamics to link human behavior with stream water quality. Funding: NSF LTER Program, NSF WSC Program, U.S. Forest Service.

**Co-PI, Lake Erie Sustainability Research Group.** Work with interdisciplinary team to develop coupled models of farmer land use and management decisions and nutrient transport in the Maumee watershed of

Lake Erie to assess the benefits of nutrient reduction to Lake Erie ecosystem services and costs to farmers. Funding: NSF Coupled Natural-Human Systems Program, Ohio Sea Grant.

**Faculty Lead, Environment, Economy, Development and Sustainability (EEDS) Undergraduate Major.** Lead curriculum development for interdisciplinary major at OSU in sustainability that integrates learning from business, economics, community and international development and environmental science.

## Honor and Awards

2015 North American Colleges and Teachers of Agriculture (NACTA) Educator Award.

2009 Sustainability Science Award for the PNAS Special Feature on Land Use Science, Ecological Society of America. Contributed Article: Irwin, Elena G. and Nancy E. Bockstael, "The evolution of urban sprawl: Evidence of spatial heterogeneity and increasing land fragmentation." Online: [www.pnas.org/content/104/52](http://www.pnas.org/content/104/52)

2009 Distinguished Research Award, Top Junior Faculty, Ohio Agricultural Research and Development Center, Ohio State University

2008 Geoffrey J.D. Hewings Award for Distinguished Young Scholar in Regional Science, North American Regional Science Council

2004 Best Paper, 1<sup>st</sup> Runner-Up, North American Association for Computational Social and Organizational Science Conference

2003 Article of the Year Award, Northeast Agricultural and Resource Economics Association

2002 Best Conference Paper on Housing and Community Development, American Collegiate Schools of Planning Conference

1994-1997 MacArthur Foundation Research Fellowship

## Teaching

AED Economics 4330: The Sustainable Economy: Concepts and Methods (current undergraduate course)

AED Economics 7415: Urban and Spatial Economics (current PhD course)

AED Economics 4567: Assessing Sustainability: Project Experience (past undergraduate capstone course)

AED Economics 6020: Public Policy and Market Regulation (past Masters course)

## Publications

### Peer-Reviewed Journal Articles

Irwin, Nicholas, K. Allen Klaiber, Elena G. Irwin. Forthcoming. Do stormwater basins generate co-benefits? Evidence from Baltimore County, Maryland. *Ecological Economics*.

Carrion-Flores, Carmen and Elena G. Irwin. 2017. A fixed effects logit model of rural land conversion and zoning. *The Annals of Regional Science*, 58(1), 181-208. doi:10.1007/s00168-016-0796-

Irwin, Elena G, Sathya Gopalakrishnan, Alan Randall. 2016. Welfare, wealth and sustainability. *Annual Review of Resource Economics* 8: DOI: 10.1146/annurev-resource-100815-095351.

Zhang, Wendong, Douglas Wrenn, Elena G. Irwin. 2016. Spatial heterogeneity, accessibility, and zoning: An empirical investigation of leapfrog development. *Journal of Economic Geography*. DOI: 10.1093/jeg/lbw007

Irwin, Elena G, Joseph Campbell, Robyn Wilson, Alessandra Faggian, Richard Moore, Nicholas Irwin. 2016. Human adaptations in food, energy and water systems. *Journal of Environmental Studies and Science*. DOI: 10.1007/s13412-016-0375-8.

Wilson, R., W. Zhang, E. Burnett, E.G. Irwin, J. Martin. 2016. What motivates farmers to apply phosphorus at the “right” time? Survey evidence from the Western Lake Erie Basin. *Journal of Great Lakes Research*. DOI: 10.1016/j.jglr.2016.08.007

Wrenn, Douglas and Elena G. Irwin. 2015. Time Is money: An empirical examination of the effects of regulatory delay on residential subdivision development. *Regional Science and Urban Economics* 51: 25-36.

Irwin, Elena G., P. Wilner Jeanty, Mark D. Partridge. 2014. Amenity values versus land constraints: The local effects and spatial spillovers of preserved land and natural features on housing values. *Land Economics*. 90(1): 61-78.

Chen, Yong, Elena G. Irwin, Ciriya Jayaprakash. 2013. Population dispersion vs. concentration in a two-region migration model with endogenous natural amenities. *Journal of Regional Science*. 53(2): 256–273.

Chen, Yong, Ciriya Jayaprakash, Elena G. Irwin. 2012. Threshold management in a coupled economic–ecological system. *Journal of Environmental Economics and Management* 64(3): 442-455.

Wrenn, D. and E.G. Irwin. 2012. How do land use policies influence fragmentation? An econometric model of land development with spatial simulation.” *Environmental Economics* 3(4): 81-95.

Chen, Yong, Elena G. Irwin, Ciriya Jayaprakash. 2011. "Incorporating spatial complexity into economic models of land markets and land use change." *Agricultural and Resource Economics Review* 40(3): 321-340.

Brady, Michael and Elena G. Irwin. 2011. “Accounting for spatial effects in economic models of land use: Recent developments and challenges ahead.” *Environmental and Resource Economics*. 48(3): 487-509.

Pickett STA, Cadenasso ML, Grove JM, Boone CG, Irwin EG, Kaushal SS, Marshall V, McGrath BP, Nilon CH, Pouyat RV, Szlavecz K, Troy A, Warren P. 2011. “Urban ecological systems: Scientific foundations and a decade of progress.” *Journal of Environmental Management* 92: 331-362.

Carrion-Flores, Carmen and Elena G. Irwin. 2010. “Identifying spatial interaction effects in the presence of spatially error autocorrelation: an application to land use spillovers.” *Energy and Resource Economics* 32: 135–153.

Irwin, Elena G., Andrew Isserman, Maureen Kilkenny and Mark D. Partridge. 2010. “A century of research on rural development and regional issues.” *American Journal of Agricultural Economics* 92(2): 522-553.

Irwin, Elena G. 2010. “New directions for urban economic models of land use change: incorporating spatial dynamics and heterogeneity.” *Journal of Regional Science* 50(1): 65-91.

Jeanty, Wilner, Mark Partridge and Elena G. Irwin. 2010. “Estimation of a spatially interdependent system of migration and housing price dynamics.” *Regional Science and Urban Economics* 40: 343-352.

Roy, Eric D., Jay F. Martin, Elena G. Irwin, Joseph D. Conroy, David A. Culver. 2010. “Unstable ecological-economic equilibria: the effects of invasive species and ecosystem restoration on nutrient management compromise in Lake Erie.” *Ecology and Society* 15(1): 20.

Irwin, Elena G., Kathleen P. Bell, Nancy E. Bockstael, David Newburn, Mark D. Partridge, JunJie Wu 2009. “The economics of urban-rural space” *Annual Review of Resource Economics*, 1: 435-459.

Chen, Yong, Elena G. Irwin and Ciriya Jayaprakash. 2009. “Dynamic modeling of environmental amenity-driven migration with ecological feedbacks.” *Ecological Economics* 68: 2498-2510.

Irwin, Elena G., Ciriya Jayaprakash and Darla K. Munroe. 2009. “Towards a comprehensive model of urban spatial dynamics” *Landscape Ecology*, 24(9): 1223-1236.

Clark, Jill K., Ron McChesney, Darla K. Munroe, Elena G. Irwin. 2009. “Spatial characteristics of exurban settlement pattern in the U.S.” *Landscape and Urban Planning*. 90: 178-188.

Warren, Keith, Ciriya Jayaprakash and Elena G. Irwin. 2009. "The interaction of segregation and suburbanization in an agent-based model of residential location." *Environment and Planning B*, 36:6, 989 – 1007.

Wu, Junjie and Elena G. Irwin (2008). "Optimal land development with endogenous environmental amenities." *American Journal of Agricultural Economics*, 90(1): 232-248.

Irwin, Elena G. and Nancy E. Bockstael (2007). "The evolution of urban sprawl: Evidence of spatial heterogeneity and increasing land fragmentation." *Proceedings of the National Academy of Sciences* (PNAS). Dec 26, 2007; 104 (52): 20672-20677.

Irwin, E. and J.K. Clark (2007). "How states can mitigate the impacts of big box retail on local communities." *Journal of Regional Analysis and Policy* 37(1):53-55.

Robinson, DT, DG Brown, DC Parker, P Schreinemachers, MA Janssen, M Huigen, H Wittmer, N Gotts, P Promburom, E Irwin, T Berger, F Gatzweiler and C Barnaud (2007). "Comparison of empirical methods for building agent-based models in land use science." *Journal of Land Use Science* 2(1): 31-55.

Bayoh, Isaac, Elena G. Irwin and Timothy Haab (2006). "Determinants of residential location choice: How important are local public goods in attracting homeowners to central city locations?" *Journal of Regional Science* 46(February): 97-120.

Chen, Kan, Elena G. Irwin, Cyriam Jayaprakash, and Keith Warren (2006). "The emergence of racial segregation in an agent-based model of residential location: The role of competing preferences." *Computational and Mathematical Organization Theory* 11(4): 333-338.

Roe, Brian, Elena G. Irwin, and Hazel A. Morrow-Jones (2005). "Changes in homeowner preferences for housing density following September 11, 2001," *Applied Economics Letters* 12(February): 73-78.

Irwin, Elena G. and Nancy E. Bockstael (2004). "Land use externalities, growth management policies, and urban sprawl." *Regional Science and Urban Economics*, 34(6): 705-25.

Carrion-Flores, Carmen and Elena G. Irwin (2004). "Determinants of residential land use conversion and sprawl at the rural-urban fringe." *American Journal of Agricultural Economics*, 86(4): 889-904.

Roe, Brian, Elena G. Irwin, and Hazel A. Morrow-Jones (2004). "Estimating the benefits of farmland preservation to homeowners: Results of a conjoint analysis of housing choice." *Land Economics*, 80: 55-75.

Morrow-Jones, Hazel, Elena G. Irwin and Brian Roe (2004). "Consumer preferences for neotraditional neighborhood characteristics." *Housing Policy Debate*, 15(1): 171-202.

Bockstael, Nancy E. and Elena G. Irwin (2003). "Public policy and the changing landscape," *Estuaries*, 26(2A): 210-225.

Irwin, Elena G., Kathleen Bell, and Jacqueline Geoghegan (2003). "Modeling and managing urban growth at the rural-urban fringe: A parcel-level model of residential land use change," *Agricultural and Resource Economics Review*, 32(1): 83-102.

Irwin, Elena G. (2002) "The effects of open space on residential property values," *Land Economics*, 78(4): 465-481.

Irwin, Elena G. and Nancy E. Bockstael (2002). "Interacting agents, spatial externalities, and the endogenous evolution of residential land use pattern," *Journal of Economic Geography*, 2(1), January: 31-54.

Bell, Kathleen and Elena G. Irwin (2002). "Spatially explicit micro-level modeling of the rural-urban interface," *Agricultural Economics*, 1678: 1-16.

Roe, Brian E., Elena G. Irwin, and Jeff S. Sharp, (2002). "Pigs in space: Modeling the spatial structure of hog in traditional and nontraditional production regions," *American Journal of Agricultural Economics*, 84(2): 259-78.

Sharp, Jeff S., Brian E. Roe, and Elena G. Irwin (2002). "Impermanence or adaptation: Changes in agriculture and livestock production in exurban Cornbelt regions from 1978 to 1997." *Growth and Change*, 33(1), Winter.

Irwin, Elena G. and Jacqueline Geoghegan (2001). "Theory, data, methods: Developing spatially-explicit economic models of land use change," *Agriculture Ecosystems and Environment*, 85(1-3): 7-24.

### **Editor Reviewed Articles**

Irwin, Elena G., Hyun Jin Cho and Nancy Bockstael (2007). "Measuring the amount and pattern of land development in non-urban areas." *Review of Agricultural Economics* 29(3): 494-501.

Irwin, Elena G. and Jill Clark (2006). "Wall street vs. main street: What are the benefits and costs of Wal-Mart to local communities?" *Choices* 21(2).

Irwin, Elena G., Cynthia J. Nickerson, and Larry Libby (2003). "What are farmland amenities worth?" *Choices*, 3rd Quarter.

Irwin, Elena G. and Nancy E. Bockstael (2001). "The problem of identifying land use spillovers: Measuring the effects of open space on residential property values," *American Journal of Agricultural Economics*, 83(3): 698-704.

### **Book Chapters**

Irwin, E.G., T. Jacquet, A. Faggian. 2017. Regional Sustainability and Resilience: Recent Progress and Future Directions," In R. Jackson, P. Schaeffer (eds) *Regional Research Frontiers*. Springer.

Irwin, E.G. and D. Wrenn. 2014. "An assessment of empirical methods for modeling land use." in J.M. Duke and J. Wu (eds.), *The Oxford Handbook of Land Economics*. London: Oxford University Press.

Helmut Haberl, Cheikh Mbow, Xiangzheng Deng, Elena G. Irwin, Suzi Kerr, Tobias Kuemmerle, Ole Mertz, Patrick Meyfroidt, and B.L. Turner II. 2014. "Finite Land Resources and Competition." In Karen Seto and Annette Reenberg (eds.) *Rethinking Global Land Use in an Urban Era*, Ernst Strüngmann Forum Report. Cambridge, MA: MIT Press, pp. 35-70.

Irwin, E.G., A. Klaiber, C. Towe, A. Troy, J.M. Grove. "Dis/Amenities, Housing Markets and Locational Choice." Manuscript draft for S. Pickett, et al. (eds.), *Science for the Sustainable City: Insights from the Baltimore School of Urban Ecology*.

Irwin, E.G., G. Buckley, M. Gnagey, D. Newburn, E. Pierce, D. Wrenn. "Land Dynamics: Regulations and Norms." Manuscript draft for S. Pickett, et al. (eds.), *Science for the Sustainable City: Insights from the Baltimore School of Urban Ecology*.

Irwin, E., Randall, A. J., and Chen, Y. (2007). "Environmental Amenities as a Driver of Regional Growth." in *Frontiers in Resource and Rural Economics: Human-Nature, Rural-Urban Interdependencies*, edited by JunJie Wu, Paul W. Barkley, and Bruce A. Weber, J. Wu, P. Barkley and B. Weber, eds. 2007. RFF Press. Ch 6.

Irwin, Elena G. and Nancy Bockstael (2006). "The Spatial Pattern of Land Use in the U.S.," pp. 77-94, in A Companion to Urban Economics, R. Arnott and D. McMillen, eds. Blackwell Publishers

Irwin, Elena G., Kathleen Bell and Jacqueline Geoghegan (2006). "Forecasting Residential Land Use Change," in Economic Advances in Land Use Policy: Implications of Emerging Research for Conservation of Farm, Forest, and Rural Character, R. Johnson and S. Swallow, eds. Resources for the Future Press.



Irwin, Elena G. and Kathleen Bell (2006). "Modeling and Managing Urban Growth at the Rural Urban Fringe: Evidence from Residential Land Use Change in Central Maryland," in The Economics of Land Use Change, K. Bell, K. Boyle, A. Plantinga, J. Rubin, and M. Teisl, eds. Ashgate Press

Plantinga, Andrew J. and Elena G. Irwin (2006). "Overview of Empirical Methods and Models of Land Use," in The Economics of Land Use Change, K. Bell, K. Boyle, A. Plantinga, J. Rubin, and M. Teisl, eds. Ashgate Press.

Segerson, Kathleen, Andrew J. Plantinga, and Elena G. Irwin (2006). "Theoretical Background," in The Economics of Land Use Change, K. Bell, K. Boyle, A. Plantinga, J. Rubin, and M. Teisl, eds. Ashgate Press.

Irwin, Elena G. (2005). Contributor to Our Earth's Changing Land. An Encyclopedia of Land-Use and Land-Cover Change, H. Geist, ed., Greenwood Press, pp. 394-5 (Leapfrogging), pp. 576-9 (Suburbanization); 625-6 (Urban sprawl); 630-2 (Urban-rural fringe).

Irwin, Elena G. and Nancy E. Bockstael (2004). "Endogenous Spatial Externalities: Empirical Evidence and Implications for Exurban Residential Land Use Patterns," in *Advances in Spatial Econometrics*, L. Anselin and R. Florax, editors. Berlin: Springer-Verlag.

Libby, Larry W. and Elena G. Irwin (2003). "Rural Amenities and Farmland Values." Forthcoming in *Government Policy and Farmland Markets: The Maintenance of Farmer Wealth*, Charles B. Moss and Andrew Schmitz, eds. Iowa State University Press.

Irwin, Elena G. and Nancy E. Bockstael (2003). "Interacting Agents, Spatial Externalities, and the Endogenous Evolution of Residential Land Use Pattern." (Reprinted with permission). In *Economics of Land Use*, International Library of Environmental Economics and Policy, P.J. Parks and I.W. Hardie, eds. Aldershot: Ashgate Publishing Limited, Hants, England.

Bockstael, Nancy E. and Elena G. Irwin (2000). "Economics and the Land Use-Environment Link," *The International Yearbook of Environmental and Resource Economics*: Edward Elgar Publishing, H. Folmer and T. Tietenberg, editors.

### ***Proceedings***

Irwin, Elena G., Ciriya Jayaprakash and Keith Warren (2004). "The Emergence of Racial Segregation in an Agent-Based Model of Residential Location: the Role of Competing Preferences." *Proceedings from the North American Association for Computational Social and Organizational Science Conference*, Pittsburgh, PA, June 27-29, 2004.

Irwin, Elena G. and Nancy E. Bockstael (2000). "Interacting Agents, Spatial Externalities and the Evolution of Residential Land Use Pattern," *Western Regional Research Publication*. W-133 *Benefits and Costs of Resource Policies Affecting Public and Private Land*, 13th Interim Report, June 2000.

Geoghegan, Jacqueline, Nancy Bockstael, Kathleen Bell and Elena G. Irwin (1996). "An Ecological Economics Model of the Patuxent Watershed: The Use of GIS and Spatial Econometrics in Prediction" in *Geographic Information Systems in Environmental Resources Management*. *Proceedings of the Conference Sponsored by the Air & Waste Management Association*. Reno, NV, March 13-15, 1996.

### ***Manuscripts***

Barons, A., W. Zhang, and E. G. Irwin, "Estimating the capitalization effects of harmful algal bloom incidence, intensity and duration: A repeated sales model of Lake Erie lakefront property values"

Chen, Yong, Elena G. Irwin, Ciriya Jayaprakash, Kyoung Jin Park. "A spatial simulation model of constrained land development in an urbanizing region."

Chen, Yong, Elena G. Irwin, and Ciriya Jayaprakash. "Thin markets and leapfrog development."

Fu, Shihi, Wangyang Lai, Elena G. Irwin. "International Transportation Costs and Local Housing Markets."

Zhang, W., E.G. Irwin. "The expanding ethanol market and farmland values: Identifying the changing influence of proximity to agricultural delivery points."

Zhang, W., E. G. Irwin, B. Roe. "Linking farmers' nutrient management decisions with downstream environmental quality: A structural modeling approach"

Zhang, W., N. Chen, M. Gildow, N. Aloysius, J. Martin, and E. G. Irwin, "A coupled spatial economic hydrological model of cropland transitions and environmental impacts"

### **Invited Seminars and Talks**

Irwin, Elena G. "Impacts and effectiveness of spatial planning policies: Evidence from the U.S." Prepared for the Special Session on Geospatial Data of the Environment Policy Committee, OECD, February 7-8, 2017.

Irwin, Elena G. "U.S. Trends in Urban Expansion." Plenary Session 2: Urban Sprawl, A Remaining Challenge, OECD Green Growth And Sustainable Development Forum, November 9-10, 2016.

Irwin, Elena G. "Accounting for Natural Capital." Prepared for the Tools for Measuring Sustainability Workshop, Ohio State University, May 19, 2016.

Irwin, Elena G. "Wealth, Welfare and Sustainability." Environmental Economics Workshop, Department of Economics, Iowa State University, April 5, 2016

Irwin, Elena G. "Sustainability Science" College of Agriculture and Life Sciences (CALS) Sustainability Lecture Series, Iowa State University, April 4, 2016

Irwin, Elena G. "Integrated Modeling of Agricultural Landscapes and Ecosystem Services: The Lake Erie Coupled Human and Natural Systems Project." Presented at "THIS IS A TEST: Landscape As A Site for Research" Symposium, Ohio State University April 1-2, 2016

Irwin, Elena G. "Land Use Change and Integrated Modeling for Sustainability Analysis." Presented at the Seeking Sustainable Pathways for Land Use in Latin-America" Conference, South American Institute for Sustainability and Resilience Studies (SARAS) March 1-4, 2016, Maldonado Uruguay.

Irwin, E.G. "Integrated modeling of agricultural land management decisions and Lake Erie ecosystem services." Invited presentation given at the Iowa State Food-Energy-Water Workshop, October 12-14 2015.

Zhang, W. and E.G. Irwin. 2015. "Alternative Nutrient Management Policies and the Trade-offs between Agricultural Profits and Water Quality Improvements." Selected paper presented at the American Agricultural Economics Association annual meeting, San Francisco CA, July 26-28, 2015

Pickett, S.T.A., E.J. Rosi-Marshall, M.L. Cadenasso, P.M. Groffman, J.M. Grove, E.G. Irwin, S.L. LaDeau, C.M. Swan. "The Baltimore Ecosystem Study: Urban Dynamic Heterogeneity." Selected paper presented at the Long Term Ecological Research (LTER) All Scientists Meeting, Rocky Mountain National Park, CO, Aug 30-Sept 2, 2015.

Irwin, Elena G. "Land Change Modeling for Sustainability Analysis." The Gellner Endowed Lecture, Clark University, Worcester MA September 30, 2014.

Irwin, Elena G. "Land Change Modeling for Policy Scenarios," Keynote talk, Northeast Agricultural and Resource Economics Association (NAREA), Morgantown WV, June 3, 2014.

Irwin, Elena G. "Land Use Regulations and Urban Sprawl?" Invited seminar, George Washington University Sustainable Urban Planning Research Symposium, Washington DC. December 6, 2013.

Irwin, Elena G. "Sustainability of Lake Erie and its Watershed: Linking Economics, Land Use and Water Quality." Invited seminar, Gosnell Lecture Series, Department of Economics, Rochester Institute of Technology, October 7, 2013.

Irwin, Elena. "Measuring and Modeling the Sustainability of Socio-Ecological Systems." Invited seminar, John Glenn School of Public Policy, Ohio State University, February 25, 2013.

Irwin, Elena G. "A Spatial Model of Exurban Development." Invited seminar, Department of Applied Economics, University of Minnesota, April 16, 2012.

Irwin Elena G. "Is Sprawl Dead?" J.W. Fanning Lecture, Department of Agricultural and Applied Economics, University of Georgia, January 19, 2012.

Irwin E. "The Effects of Spatial Heterogeneity and Regulatory Uncertainty on Residential Subdivision Development." Invited seminar given at the Department of Agricultural and Resource Economics, Oregon State University, December 3, 2011.

Irwin E. "Research on Urbanization Processes and Patterns." Invited presentation given at the Center for Urban and Regional Analysis, Ohio State University, November 7, 2011.

Irwin, E. "Agent-Based Modeling of Exurban Land Markets." Invited seminar given at the Triangle Resource and Environmental Economics (TREE) Seminar Series, hosted by Resource Triangle Institute, Duke University and North Carolina State University, April 29, 2011.

Irwin, E. "Explaining the Persistence of Scattered Urban Land Development." Invited seminar given at the Resources Research Institute, West Virginia University, March 31, 2011.

Irwin, E. "Farming people versus farming cows: Causes and consequences of urban development in rural places." Invited keynote lecture given at the Lakes Water Quality Society Symposium, New Zealand, April 7, 2011.

Irwin, Elena G. "Economic models of land use change." Invited seminar given at University of Nebraska, Lincoln, NE, October 8, 2009. Also given at the Center for Urban Environmental Research at University of Maryland Baltimore County, MD, April 23, 2010 and Department of Economics, Otterbein College, April 30, 2010.

Irwin, Elena G. "Social-ecological systems (SES's) research: some perspectives on the good, the bad and the ugly." Invited seminar given at the University of Maine, Sustainability Solutions Initiative, September 10, 2009.

Irwin, Elena G. "Spatial dynamics and economic models of land use change." Invited presentation given at the "Economics of Land Use Change: Advancing the Frontiers" workshop, Washington D.C., June 25-26 2009.

Irwin, Elena G. "New directions for urban economic models of land use change: incorporating spatial heterogeneity and transitional dynamics." Invited paper given at the 50<sup>th</sup> Anniversary Journal of Regional Science Conference, Federal Reserve Bank of New York, New York City, NY, April 23-24, 2009. Also to presented as an invited seminar at the Smart Growth Center, University of Maryland, College Park, MD, April 17, 2009.

Irwin, Elena G. and Darla K. Munroe. "Urban-Rural Land Use Change in the U.S." Invited presentation at "Tough Choices - Land Use under a Changing Climate" joint German-U.S. Conference on Climate Change, Berlin, Germany, October 3-4, 2008.

Irwin, E. and Carrion-Flores, C. 2008. "Identifying Spatial Interaction Effects in the Presence of Spatially Error Autocorrelation: An Application to Land Use Spillovers." Presented at INRA-Paris, Workshop on Spatial Econometrics, June 2008 and by Carrion-Flores at University of Wyoming, Workshop on Spatial Environmental Economics, September 2008.

Irwin, E. "Developing process-based spatial models of land use change using economic theory and empirical modeling," Invited presentation at the Global Land Project Workshop on "The design of integrative models of natural and social systems in land change science," February 28-March 2, 2008.

Irwin, Elena G. "Measuring and Modeling Land Fragmentation." Seminar presented at the Institute of Environmental Decisionmaking, ETH Zurich, Switzerland, November 13, 2007 and Department of Geography, University of Zurich, May 2008.

Irwin, Elena G. "Thinking spatially: Economic models of urban land use change." Invited presentation given at the workshop 'Spatial Thinking in the Social Sciences and Humanities,' National Center for Supercomputing Applications, University of Illinois at Urbana-Champaign, December 18-19, 2006.

Irwin, Elena G. "Determinants of Land-Cover and Land-Use Change at Different Spatial Scales." Invited presentation, *Urban Ecology Workshop*, Duluth, MN, May 18-20, 2006.

Irwin, Elena G. "The Effects of Open Space on Nearby Property Values." Invited presentation, Workshop on Impact of Land Use Designations on Neighboring Property Values, Lincoln Institute for Land Policy, Boston, MA, November 7, 2005.

Irwin, Elena G., Alan Randall and Yong Chen. "Environmental Amenities as a Driver of Regional Growth." Invited presentation, Workshop on Frontiers in Resource and Rural Economics: Rural-Urban and Nature-Human Interactions, Oregon State University, October 5-7, 2005.

Bayoh, Isaac, Elena Irwin and Tim Haab. "Determinants of Residential Location Choice: How Important Are Local Public Goods in Attracting Households to Central City Locations." Invited paper presented at the Critical Issues Symposium on State and Local Government Regulations and Economic Development, Florida State University, Tallahassee, Florida, March 4, 2005 and at the Brown Bag Seminar in City and Regional Planning, Ohio State University, April 22, 2005.

Irwin, Elena G., Jeff Sharp and Jill Clark. "Spatial Patterns of Exurbanization in Ohio: A Test of the Urban Bid Rent Model." Presentation given at the Ohio State University Center for Urban and Regional Analysis Roundtable, Columbus, OH, July 2004.

Irwin, Elena G., Isaac Bayoh and Brian Roe. "Assessing the Impact of Animal Agriculture on Exurban Property Values Using a Spatially Explicit Approach." Presentation given at the Ohio State University Center for Urban and Regional Analysis Roundtable, Columbus, OH, April 2004.

Irwin, Elena G. "Modeling Agent Interactions and the Formation of Land Use Patterns: The Problem of Empirical Identification." Paper presented at University of Michigan, Center for the Study of Complex Systems, Ann Arbor, MI, October 24, 2002.

Irwin, Elena G. and Nancy E. Bockstael. "Urban Sprawl as a Spatial Economic Process." Paper presented at the Department of Agricultural and Applied Economics, University of Wisconsin, April 25, 2002 and the Department of Agricultural Economics, University of Missouri, April 18, 2002.

Bell, Kathleen and Elena G. Irwin, "Modeling the Rural-Urban Interface; Data-Rich Environments," Invited paper and hands-on learning module presented at the Learning Workshop on Spatial Data Analysis at the American Agricultural Economic Association Meeting, Chicago, IL, August 4, 2001; also presented at the Spatial Analysis Learning Workshop, International Association of Agricultural Economics, Berlin, Germany, August, 2000.

Irwin, Elena G. "Identifying Interaction Effects among Spatially Distributed Agents: An Application to Land Use Spillovers." Paper presented at the Workshop on Economic Policy and Public Finance, Department of Economics, University of Chicago, May 10, 2001. Also presented at the Environmental Policy Workshop, North Carolina State and Research Triangle Institute, February 20, 2001 and the Econometrics Workshop, Department of Economics, Ohio State University, May 15, 2001.

Irwin, Elena G. "Explaining the Evolution of 'Sprawl' Land Use Patterns at the Urban-Rural Fringe." Seminar given at the Regional Research Institute, West Virginia University, February 2000.

Irwin, Elena G. "Explaining the Evolution of Land Use Patterns at the Urban-Rural Fringe: The Role of Spatial Externalities." Seminar given at the City and Regional Planning Department, Ohio State University, February 2000.

Irwin, Elena G. "Modeling Urban Growth at the Urban-Rural Fringe: A Case Study of Residential Land Use Change in Central Maryland," Invited presentation given at the "Rural Land-Use Change Workshop," University of Maine, July 1999.

Irwin, Elena G. "Explaining Patterns of Exurban Residential Land Use," Presentation given at the Ohio State University Urban Regional Initiative Roundtable, Columbus, OH, May 1999.

Irwin, Elena G. "Spatial Externalities and the Evolution of Land Use Pattern. An Application of GIS." Seminar given at the Dipartimento di Scienze Economiche, Verona, Italy, June 1998.

Irwin, Elena G. "Modeling Change in the Pattern of Land Use: A Discussion of Spatial Models and Models of Spatial Processes." Nancy E. Bockstael and Elena G. Irwin. Seminar given at the Division of Resource Management, West Virginia University, Morgantown, WV, May 1997. Paper first presented by Nancy Bockstael at the Conference on Research Transformations in Environmental Economics: Policy Design in Response to Global Change, sponsored by the Center for Environmental and Resource Economics and NOAA, Duke University, Durham, NC, May, 1997.

Irwin, Elena G. "An Ecological Economics Model of the Patuxent Watershed." Workshop on Ecosystem Valuation, sponsored by the Economic Research Service, United States Department of Agriculture, Washington, DC, March 1997.

### **Conference Presentations**

Irwin, E.G., N. Irwin, W. Lai. 2017. "What about sprawl? The effects of the housing boom and Great Recession on residential land consumption in the U.S." 2017 AERE Conference Pittsburgh, PA, May 31-June 2, 2017.

Chen, Y., E.G. Irwin, C. Jayaprakash, D. Shaffer. 2015. "Market Thinness, Income Sorting and Leapfrog Development Across the Urban-Rural Gradient." Selected paper presented at the North American Regional Science Council annual meeting, Portland OR November 11-14, 2015.

"The Baltimore Ecosystem Study: Urban Dynamic Heterogeneity." Pickett, S.T.A., E.J. Rosi-Marshall, M.L. Cadenasso, P.M. Groffman, J.M. Grove, E.G. Irwin, S.L. LaDeau, C.M. Swan. Poster presented at the Long Term Ecological Research (LTER) All Scientists Meeting, Rocky Mountain National Park, CO, Aug 30-Sept 2, 2015.

Zhang, W. and E.G. Irwin. 2015. "Alternative Nutrient Management Policies and the Trade-offs between Agricultural Profits and Water Quality Improvements." Selected paper presented at the American Agricultural Economics Association annual meeting, San Francisco CA, July 26-28, 2015

Irwin, N., H.A. Klaiber, E.G. Irwin. 2015. "The Potential for Co-Benefits from Stormwater Management for Suburban Households." Selected paper presented at the Association for Environmental and Resource Economists Annual Meeting, San Diego, CA June 2015.

"Modelling Optimal Household Location in Thin Markets: An Alternative Explanation for Leapfrog," Yong Chen, Elena G. Irwin, Ciriya Jayaprakash. North American Regional Science Council Annual Meeting. Washington DC, Nov. 13-15, 2014.

"A Coupled Spatial Economic-Hydrological Model of Cropland Transitions and Environmental Impacts" Zhang, Wendong, S. Gebremariam, J. F. Martin, E. G. Irwin, and N. Chen. Applied and Agricultural Economic Association, Minneapolis, MN, July 2014.

Elena G. "The Economics of Natural Infrastructure: The Importance of Public-Private Partnerships." 3rd Annual World Business Council Sustainable Development Midwest Conference, Fisher College of Business. Columbus, OH. Dec. 2013.

Irwin, Elena G and Doug Wrenn. The Structural Effects of Zoning in Residential Land Markets. North American Regional Science Council Annual Meeting. Atlanta GA. Nov. 8-11, 2013

Chen, Yong and Elena G Irwin. A Model of Exurban Land Development. North American Regional Science Council Annual Meeting. Atlanta GA. Nov. 8-11, 2013

Stephens, Heather, Elena G Irwin, Mark Partridge. "How do pollution and other environmental disamenities affect business location?" North American Regional Science Council Annual Meeting. Atlanta GA. Nov. 8-11, 2013

"From Farmer Management Decisions to Watershed Environmental Quality: A Spatial Economic Model of Crop and Tillage Choices." Zhang, Wendong and E. G. Irwin. Selected paper presented at the Heartland Environmental and Resource Economics Workshop at Champaign, IL, November 2013.

Irwin, Elena G. "Locational choice and land use dynamics across the Baltimore city-suburban-exurban system." Baltimore Ecosystem Study Annual Meeting. Baltimore, MD. Oct. 22, 2013.

Wrenn, Doug and EG Irwin (2013). The Structural Effects of Zoning in Residential Land Markets. Association of Environmental and Resource Economists. Banff CA. June 6-8, 2013.

Irwin, EG, Doug Wrenn (2013). Evaluating the Impact of Alternative Land Use Policies on Residential Land Development. European Regional Science Association Annual Meeting. Palermo, Italy. August 28-30, 2013.

Zhang, Wendong, Elena G. Irwin. "From Farmers' Management Decisions to Watershed Water Quality: A Spatial Economic Model of Land Management Choices." Selected paper presented at the Annual Meeting of the Applied and Agricultural Economic Association, Washington D.C., August 2-4, 2013.

Zhang, Wendong, Douglas Wrenn, Elena G. Irwin. "Tests of the urban economic model using a new measure of leapfrog development." Selected paper for the Urban Economics Association sessions at the 59th Annual North American Meetings of the Regional Science Association International, Ottawa, Canada, November 7-10, 2012.

Gnagey, Matt and Elena G. Irwin. "Does Distance Still Matter? Evidence from a Semi-Parametric Analysis of Land Prices." Selected paper for the Urban Economics Association sessions at the 59th Annual North American Meetings of the Regional Science Association International, Ottawa, Canada, November 7-10, 2012.

Wrenn, Douglas and Elena G. Irwin. "Time Is Money: An Empirical Examination of the Dynamic Effects of Regulatory Uncertainty on Residential Subdivision Development." Selected paper for the Urban Economics Association sessions at the 59th Annual North American Meetings of the Regional Science Association International, Ottawa, Canada, November 7-10, 2012.

Stephens, Heather M., H. Allen Klaiber, and Elena Irwin. "Housing Values and Natural Amenities in the Great Lakes Region." Selected paper for the Urban Economics Association sessions at the 59th Annual North American Meetings of the Regional Science Association International, Ottawa, Canada, November 7-10, 2012.

Wrenn, Douglas and Elena G. Irwin. "Integrating Economics Into Land Use Change Models to Simulate Policy Scenarios and Assess Sustainability." Selected presentation for the 4th International EcoSummitt, Columbus, Ohio, September 30th-October, 5th, 2012.

Zhang, Wendong, Elena G. Irwin and Cynthia Nickerson. "The Expanding Ethanol Market and Farmland Values: Identifying the Changing Influence of Proximity to Agricultural Delivery Points." Selected paper presented at the Annual Meeting of the Applied and Agricultural Economic Association, Seattle, Washington, August 12-14, 2012.

Wrenn, Douglas, Abdoul Sam and Elena G. Irwin. "Searching for the Urban Fringe: Exploring the Spatiotemporal Determinants of Land Use Using a Conditionally-Parametric Duration Model." Selected

paper presented at the Annual Meeting of the Applied and Agricultural Economic Association, Seattle, Washington, August 12-14, 2012.

Konar, Avishek, Roe, Brian E. and Irwin, Elena G. 2012. "Do Farmers Have Heterogeneous Preferences for the Environment and Does It Matter? A Latent-Class Approach to Explaining Field-Level Tillage Choices," Selected Paper, Agricultural and Applied Economics Association Annual Meetings, Seattle, Washington, August 12-14.

Konar, Avishek, Roe, Brian E. and Irwin, Elena G. 2012. "Do Farmers Have Heterogeneous Preferences for the Environment and Does It Matter? A Latent-Class Approach to Explaining Field-Level Tillage Choices," Selected Paper, Association of Environmental and Resource Economists, Asheville, NC, June 3-5.

Chen, Yong, Elena G. Irwin, Ciriya Jayaprakash. "A Spatial Model of Exurban Land Development." Selected paper presented at the Allied Social Science Association (ASSA) meetings, Association of Environmental and Resource Economists (AERE) session, Chicago, IL, January 6-8, 2012.

Wrenn, D., E. Irwin. "Heterogeneous Effects of Regulation: A Nonparametric Model of Residential Land Development." Selected paper presented at Camp Resources XVIII for Environmental Economists, Wrightsville Beach, North Carolina, August 2011 and the North American Regional Science Council Annual Meeting, Miami, FL, November 2011.

Chen, Y., E. Irwin, C. Jayaprakash. "An Agent-Based Model of Exurban Land Development." Selected paper presented at the Association of Environmental and Resource Economists Annual Conference, Seattle, WA, June 2011 and the Agricultural and Applied Economics Association Annual Meeting, Pittsburgh, PA, July 2011.

Towe, C., A. Klaiber, D. Wrenn, D. Newburn. E. Irwin. "Exploiting Spatial and Temporal Variations in Residential Subdivision Development to Identify Urban Growth Spillovers." Selected paper presented the Association of Environmental and Resource Economists Annual Conference, Seattle, WA, June 2011 and the Agricultural and Applied Economics Association Annual Meeting, Pittsburgh, PA, July 2011.

Irwin, E. "The Ecological Economics of Sustainability and Resilience." Presentation given at the Baltimore Ecosystem Study Quarterly Meeting, University of Maryland Baltimore County, January 2011.

Irwin, E., D. Wrenn and W. Zhang. "Exurban Development in Carroll County, MD." Presentation given at the Baltimore Ecosystem Study Annual Meeting, University of Maryland Baltimore County, October 2010.

Wrenn, Doug and E.G. Irwin. "A Competing Risks Model of Exurban Land Development in the Presence of Multiple Options." Selected paper, North American Regional Science Council Annual Meeting, Denver, CO, November 2010.

Carrion-Flores, C. and E.G. Irwin. "A Fixed Effects Model of Rural Land Conversion and Zoning." Selected paper, North American Regional Science Council Annual Meeting, Denver, CO, November 2010.

Chen, Y., Irwin E., Jayaprakash, C. "Urban Land Development Patterns with Short Run Dynamics." Selected paper, North American Regional Science Council Annual Meeting, Denver, CO, November 2010.

Irwin, E.G., D. Wrenn and W. Zhang. "Exurban Development in Carroll County, MD." Baltimore Ecosystem Study Annual Meeting, University of Maryland Baltimore County, October 2010.

Ara, Shihomi, Elena Irwin and Tim Haab. "Measuring the effects of Lake Erie water quality using spatial hedonic price models." Paper presented at the Federal Reserve Bank of Cleveland Green Recovery Applied Research Seminar, Cleveland, OH, April 8, 2010.

Chen, Y., Irwin E., Jayaprakash, C. "Quantifying and explaining spatio-temporal patterns of fragmentation in the Baltimore region." Selected paper, North American Regional Science Council Annual Meeting, San Francisco, CA, November 2009. Also presented at the European Regional Science Annual Meeting, Lodz, Poland, August 2009.

Chen, Y., Irwin, E., Jayaprakash, C. "Managing Regional Growth in a Coupled Ecological-Economic Model." Selected paper, North American Regional Science Council Annual Meeting, New York, NY, November 2008.

Jeante, P.W., Partridge, M, Irwin, E., "Estimation of a Spatially Interdependent System of Migration and Housing Price Dynamics." Selected paper, Spatial Econometrics Association, November 2008.

Chen, Yong, Elena Irwin and Ciriya Jayaprakash. "Ecological Feedbacks and Fast-Slow Dynamics in a Model of Amenity-Driven Regional Growth." Selected paper presented in the AERE session at the American Agricultural Economics Association Meeting, Orlando, FL, July 26-28, 2008.

Irwin, Elena G., Ciriya Jayaprakash and Yong Chen. "A Dynamic Model of Household Location, Regional Growth and Endogenous Natural Amenities with Cross-Scale Interactions." Selected paper presented at the "Frontiers of Environmental Economics" conference, Resources for the Future and US Environmental Protection Agency, Washington D.C., February 26-27, 2007. Also presented at seminars at Purdue University (March 23, 2007); University of Illinois (April 12, 2007); Ohio State (March and May 2007); and ETH Zurich (October 5, 2007).

Irwin, Elena, Nancy Bockstael and Hyun Jin Cho. "Measuring Sprawl and Exurban Development: Now You See It, Now You Don't." Selected paper presented at the American Association of Agricultural Economics, Allied Social Sciences Association Annual Meeting, Chicago, IL, January 5-7, 2007.

Irwin, Elena, Nancy Bockstael and Hyun Jin Cho. "Measuring and Modeling Urban Sprawl: Data, Scale and Spatial Dependencies." Invited paper presented at the Urban Economics Sessions, 53<sup>rd</sup> Regional Science Association International Annual Meeting, Toronto, November 16-18, 2006.

Clark, Jill, Darla Munroe and Elena G. Irwin. "Exurban Settlement Patterns and the Exurban Condition: A Typology of U.S. Metropolitan Areas." Paper presented at the 53<sup>rd</sup> Regional Science Association International Annual Meeting, Toronto, November 16-18, 2006.

Ara, Shihomi, Elena G. Irwin and Tim Haab. "The Influence of Water Quality on Housing Prices around Lake Erie." Selected paper, American Agricultural Economics Association Annual Meeting, Long Beach, CA, July 2006 and Third World Congress for Environmental and Resource Economists, Kyoto, Japan, July 3-7, 2006.

Clark, J.K., R. McChesney, D. Munroe, and E. Irwin. "Emerging Exurbia: Spatial Characteristics of Exurban Settlement." Prepared for 52nd Annual North American Meetings of the Regional Science Association International. Las Vegas, NV, November 10-12, 2005.

Munroe, D., J. Clark and E. Irwin. "Regional Determinants of Exurban Land Use in the US Midwest." Paper prepared for the 52nd Annual North American Meetings of the Regional Science Association, Las Vegas, NV, November 12, 2005.

Clark, J. K., E. Irwin and R. McChesney. "Emerging Exurbia: A comparative analysis of exurban settlement patterns across the US." Prepared for the Emerging Issues Along Urban/Rural Interfaces: Linking Science and Society. Atlanta, GA, March 13-16, 2005.

Carrion, Carmen and Elena G. Irwin. "Using Regression Discontinuity Design to Identify the Effect of Zoning on Rural Land Conversion." Selected paper presented at the American Agricultural Economics Association Annual Meeting, Providence, RI, July 24-27, 2005.

Irwin, Elena G. and David Culver. "Biocomplexity of Large Lake Ecosystems." Invited poster presentation, National Science Foundation 5th Annual Biocomplexity Conference, Washington, D.C., March 21-22, 2005 and at the Ohio Sea Grant Investigators Program, Ohio State University, August 21, 2005.

Moreno, Rocio and Elena G. Irwin. "Does Distance Make Good Neighbors? The Role of Spatial Externalities and Income in Residential Development Patterns." Selected long paper presented at the American Agricultural Economics Association Meeting, Denver, CO, August 1-4, 2004.



Bayoh, Isaac, Elena G. Irwin, and Brian Roe. "The Value of Clean Dairy Air: Accounting for Endogeneity and Spatially Correlated Errors in a Hedonic Analysis of the Impact of Animal Operations on Local Property Values." Selected long paper presented at the American Agricultural Economics Association Meeting, Denver, CO, August 1-4, 2004.

Irwin, Elena G., Ciriya Jayaprakash, and Keith Warren. "The Emergence of Racial Segregation in an Agent-Based Model of Residential Location: the Role of Competing Preferences." Selected paper presented at the North American Association for Computational Social and Organizational Science Conference, Pittsburgh, PA, June 27-29, 2004.

Irwin, Elena G. and Jeff Sharp. "Heterogeneity in the Hinterland: A Typological Analysis of Ohio Exurban Areas." Selected paper presented at the American Agricultural Economics Association Meeting, Montreal, Canada, July 27-30, 2003.

Wu, Junjie and Elena G. Irwin. "Human-Nature Interactions and the Spatial Pattern of Land Use." Selected paper presented at the 2003 AERE Workshop, "Spatial Theory, Modeling, and Econometrics in Environmental and Resource Economics," Madison, Wisconsin, June 15-17, 2003.

Morrow-Jones, Hazel, Elena Irwin and Brian Roe. "The Demand for Neotraditional Neighborhoods Characteristics: How Damning is Density?" Selected Paper, Annual American Collegiate Schools of Planning Conference, November 21-24, 2002, Baltimore, Maryland.

Irwin, Elena G., Brian Roe, and Hazel Morrow-Jones. "Estimating the Benefits of Farmland Preservation to Homeowners: Results of a Conjoint Analysis of Housing Choice." Selected paper presented at the American Agricultural Economics Association Meeting, Long Beach, CA, July 28-31, 2002.

Bayoh, Isaac, Elena G. Irwin and Timothy Haab. "Flight from Blight vs. Natural Evolution: Determinants of Household Residential Location Choice and Suburbanization." Selected paper presented at the American Agricultural Economics Association Meeting, Long Beach, CA, July 28-31, 2002.

Bell, Kathleen and Elena G. Irwin. "Public Preferences for Open Space: Evidence from Land Preservation Ballot Initiatives." Selected paper presented in the AERE Session at the American Agricultural Economics Association Meeting, Long Beach, CA, July 28-31, 2002.

Munroe, Darla and Elena G. Irwin. "Estimating Econometric Models of Spatial Land Use Processes: Separating Fact from Fiction." Paper presented as part of an organized symposium on "New Techniques for Land Use Modeling," at the American Agricultural Economics Association Meeting, Long Beach, CA, July 28-31, 2002.

Irwin, Elena G. and Nancy E. Bockstael. "Urban Sprawl as a Spatial Economic Process." Selected paper presented at the 2002 Lincoln Institute of Land Policy seminar on "Analysis of Urban Land Markets and the Impact of Land Market Regulation," Cambridge, MA, July 10-12, 2002. Also presented at the 2nd World Congress of Environmental and Resource Economists, Monterey, CA June 27, 2002.

Irwin, Elena G. and Mark Fleming. "Spatial Issues in the Economics of Modeling Land Use Change." Invited presentation at "The Economics of Urban Sprawl and Land Use Change" short course, University of California, Santa Barbara, CA, June 22, 2002.

Libby, Larry and Elena G. Irwin. "Rural Amenities and Farmland Values," Invited paper presented at "Government Policy and Farmland Markets: Implications for the New Economy," USDA/ERS, Washington D.C., May 6, 2002.

Irwin, Elena G. "The Effects of Open Space on Residential Property Values." Paper presented at the Regional Science Association International Meeting, Charleston, SC, November 15-16, 2001.

Carrion, Carmen and Elena G. Irwin. "Using a Spatial Economic Model to Explain Residential Sprawl." Paper presented at the Regional Science Association International Meeting, Charleston, SC, November 15-16, 2001.

Hsieh, Wen-hua, Elena G. Irwin and Lawrence Libby. "The Effect of Rural Zoning on the Allocation of Land Use in Ohio." Selected paper presented at the 2001 American Agricultural Economics Association Meeting, Chicago, IL, August 3-7, 2001.

Ozturk, Erdogan and Elena G. Irwin. "Explaining Household Location Choices Using a Spatial Probit Model," Selected paper presented at the 2001 American Agricultural Economics Association Meeting, Chicago, IL, August 3-7, 2001.

"The Problem of Identifying Land Use Spillovers: Measuring the Effects of Open Space on Residential Property Values," Elena G. Irwin and Nancy Bockstael. Selected paper presented at 2001 Allied Social Sciences Association Meeting, New Orleans, January 4-7, 2001.

"Spatial Dependence among County-Level Land Use Changes." Hsieh, W.H., Elena G. Irwin and Lynn Forster. Selected paper presented at the 2000 American Agricultural Economics Association Annual Meeting, Tampa, FL. July 30-August 2, 2000.

"An Application of Split Population Duration Model to Land Use Transitions." Hsieh, W.H. and Elena G. Irwin. Selected paper presented at 2000 Canadian Agricultural Economic Society Annual Meeting, Vancouver, B.C., June 1-3, 2000.

"Using Spatial Data and Methods to Study Rural-Urban Change," Elena G. Irwin. Invited paper presented at "Rural Policy: Issues, Data Needs, and Data Access," AAEE Rural Policy Conference, Washington, DC, March 2000.

"Theory, Data, Methods: Developing Spatially-Explicit Economic Models of Land Use Change," Elena G. Irwin and Jacqueline Geoghegan. Invited paper presented at an international workshop on "Current progress in quantifying spatially explicit causes and effects of land use/cover change," Wageningen University, The Netherlands, December 1999.

"Moving Up and Out or Flight from Blight: Evidence of the Causes of Sprawl at the Urban-Rural Fringe," Elena G. Irwin. Selected paper presented at the 1999 Agricultural Economics Association Meeting, Nashville, TN, August 1999.

"Endogenous Spatial Externalities: Empirical Evidence and Implications for Exurban Residential Land Use Patterns," Elena G. Irwin and Nancy E. Bockstael. Selected paper presented at the North American Meetings of the Regional Science Association International, Santa Fe, NM, November 1998.

"Interacting Agents, Spatial Externalities, and the Endogenous Evolution of Land Use Pattern," Elena G. Irwin and Nancy E. Bockstael. Selected paper presented at the NBER Summer Institute 1998, Workshop on Public Policy and the Environment, Cambridge, MA, August 1998.

"The Role of Spatial Externalities in the Evolution of Urban Sprawl," Elena Irwin. Selected paper presented at the World Congress of Environmental and Resource Economists, Venice, Italy, June 1998.

"Using GIS to Model Rural to Urban Land Conversion: A Case Study in the Patuxent Watershed, MD," Elena G. Irwin. Paper presented at the International Association of Agricultural Economists Annual Meeting, Sacramento, CA, August 1997.

"Exurban Patterns of Development," Elena Irwin. Panel discussion in the symposium on "Real World Applications of GIS in Agricultural Economics," Agricultural Economics Association Meeting Toronto, Ontario, July 1997.

"Valuation of Ecosystems," Elena G. Irwin. Invited presentation at the Society for Conservation Biology and Ecological Society of America Annual Meeting, Providence, RI, August 1996.

"Land Use Conversion and Optimal Scale of the Economy," Elena G. Irwin. Presentation at the International Society of Ecological Economics Meeting, Boston, MA, August 1996.

"A Spatial Analysis of Externalities and Increasing Returns in Land Use Conversion," Elena G. Irwin. Selected paper presented at the Association of Environmental and Resource Economists Meeting, San Antonio, TX, July 1996.

"Safe Minimum Standards for Ecosystems," Elena G. Irwin. Selected paper presented at the American Agricultural Economics Association Annual Meeting, Indianapolis, IN, August 1995.

### **Short Courses**

Irwin E. "Spatial modeling of land markets and land use change." XII Biannual Short Course sponsored by LACEEP (Latin American and Caribbean Environmental Economics Program) and CATIE (Solutions for Environment and Development), Panama City, Panama, September 30 – October 2, 2011.

Irwin E. "Land Use Economics Workshop." Short Course sponsored by the Professorship of Environmental Policy and Economics, Institute for Environmental Decisions, ETH Zürich, Switzerland, May 5-6, 2008.

Irwin E. "Introduction to Spatial Econometrics." Short course sponsored by the Department of Geography, University of Zürich, Switzerland, April 2-4, 2008.

### **Research Funding**

#### ***Current***

"Baltimore Ecosystem Study: Dynamic heterogeneity: Investigating outcomes and drivers of ecological change in urban ecosystems." NSF Long Term Ecological Research Program. Irwin (Co-PI). Total award amount: \$ 6,762,000. Irwin subaward: \$150,000. Dates: 11/01/2016-10/31/2022.

"NPDES stormwater and Clintonville blueprint monitoring project." City of Columbus. Irwin (Co-PI). Total award amount: \$232,280. Dates: 03/2016-03/2017.

"Conference on environmental change, migration, and resilience of regional food, water and energy systems." National Science Foundation Behavioral and Cognitive Sciences Division. Irwin (PI). Amount: \$62,496. Dates: 07/01/15 - 12/31/17.

#### ***Past***

"Linking Agricultural Production and Great Lakes Ecosystem Services: Modeling and Valuing the Impacts of Harmful Algal Blooms in Lake Erie." NOAA/Ohio Sea Grant program. PIs: Elena G. Irwin, Jay Martin, Wendong Zhang, Seyoum Gebremariam, Michael Fraker. Amount: \$199,000. Dates: 2/2014-1/2016.

"Co-Evolution of Upstream Human Behavior and Downstream Ecosystem Services in a Changing Climate." National Science Foundation Coupled Human and Natural Systems program. PIs: Jay Martin, Carlo DeMarchi, Elena G Irwin, Stuart Ludsin, Eric Toman, Robyn Wilson. Amount: \$1.5 million. Dates: 9/2011 – 8/2015.

"Spatial dynamic modeling of exurban land markets and land use patterns." National Science Foundation Geography and Spatial Sciences program. PIs: Elena Irwin, Yong Chen, Ciriya Jayaprakash. Amount: \$230,000. Dates: 9/2011 – 8/2014.

"Linkages and Feedbacks Between Regional Climate Variability and Patterns of Urban Development – Impacts on the Urban Water Cycle and Nutrient Export." National Science Foundation Water Sustainability and Climate Program. PI: Claire Welty. Co-PIs include Irwin. Amount: \$5.0 million. Dates: 1/2011 – 12/2015.

"Development of empirical analyses and simulation models of urban household and firm location behaviors and landscape outcomes." Cooperative Agreement, U.S. Forest Service USDA Northern Research Station and the Baltimore Ecological Study (BES) Long-Term Ecological Research program. PI: Elena G. Irwin. Amount: \$150,000. Dates: 10/2010 – 9/2016.

“Multiscale dynamics and emergent patterns in urban spatial systems,” James S. McDonnell Foundation, Study of Complex Systems Program, 2008-2012. PI’s: Elena G. Irwin and Ciriya Jayaprakash. Amount: \$406,834. Dates: 9/2008 – 8/2013.

“Leveraging natural amenities for sustainable development in the Great Lakes region.” NOAA/Ohio Sea Grant, 2010-2012. PIs: Mark Partridge, Elena G. Irwin and Heather Stephens. Amount: \$177,313. Dates: 2/2010 – 12/2012.

“Designing effective land management policies for the 21<sup>st</sup> century Ohio River Basin,” Ohio State University Climate-Water-Carbon Initiative, 2009-2013. PI’s: Charles Goebel, Elena G. Irwin, Richard Moore, Robyn Wilson. Amount: \$1.3 million. Dates: 9/2008 – 8/2012.

“Construction of property tax database.” Cooperative Agreement, Economic Research Service, USDA 2008-2009. PI’s: Michael Brady, Elena G. Irwin, Cindy Nickerson, Charles Towe. Amount: \$137,500. Dates: 9/2008 – 12/2011.

“Analysis of the patterns and causes of fragmented urban development into rural areas using geocoded parcel data.” Cooperative Agreement, Economic Research Service, USDA 2008-2009. PI’s: Elena G. Irwin and Michael Brady. Amount: \$18,002. Dates: 9/2008 – 12/2011.

“Urbanization and Lake Erie tributary water quality: A dynamic spatial model with policy scenarios.” OARDC Interdisciplinary Grants Program. PIs: Elena G. Irwin and Jay Martin. Amount: \$100,000.

“Using surveys, experiments and agent-based models to better understand recreation and tourism decision in the Lake Erie region.” NOAA/Ohio Sea Grant, 2006-2010. PIs: Elena G. Irwin and Tim Haab. Amount: \$117,193.

“Large lake ecosystems: Modeling the interactions among human, biological and physical processes.” NSF Biocomplexity Program, 2004-2008. PI: David Culver. Co-PI’s: Elena Irwin, Alan Randall, Jeff Reutter. Amount: \$1.4 million.

“Agricultural adaptation at the rural-urban interface: Can communities make a difference?” National Research Initiative Competitive Grants Program, US Department of Agriculture, Sept. 2004 – Aug 2007. Principal investigator: Jeff Sharp. Co-PIs: Doug Jackson-Smith, Larry Libby, Elena Irwin.

“The influence of water quality and lake amenities on the demand for residential development around Lake Erie.” NOAA/Ohio Sea Grant, 2004-2006. PI’s: Elena Irwin and Tim Haab. Amount: \$107,000.

“The value of parkland in Montgomery County, Ohio.” Montgomery County Five Rivers MetroParks and Miami Valley Regional Planning Commission, 2004. PI: Elena Irwin. Amount: \$20,000.

“Developing a spatial watershed model to predict the effects of watershed policies on coastal water quality and habitat change.” NOAA/Ohio Sea Grant, 2003-2005. Principal Investigators: Jay Martin, Elena Irwin, Tim Granata, William Mitch. Amount: \$94,000.

“Assessing the impact of animal agriculture on exurban property values using a spatially explicit hedonic analysis.” Center for Urban and Regional Analysis, Ohio State University, 2002-2003. PI’s: Brian Roe, Jon Rausch, Elena Irwin. Amount: \$28,000.

“Understanding exurban change in Ohio and the Midwest.” Ohio Agricultural Research and Development Center Seed Grant, 2002-03. PI: Elena Irwin. Collaborators: Jeff Sharp, Larry Libby. Amount: \$25,000.

“The impact of the September 11th terrorist attacks on factors that influence the decision to stay, remodel or move among American metropolitan households.” Short Grant Exploratory Research, National Science Foundation, 2001. Principal Investigators: Hazel Morrow-Jones and Elena G. Irwin. Amount: \$40,000.

“Model development: The human and social dimensions of biocomplexity.” Seed grant from the Environmental Policy Initiative (EPI) in support of the EPI biocomplexity working group, June 2001. PI’s: Elena Irwin and Keith Warren. Amount: \$25,000.

“Using conjoint analysis to identify household preferences for open space and neo-traditional neighborhoods,” Funding received from OSU Swank Program in Rural-Urban Policy, 2001. Principal Investigators: Elena Irwin and Hazel Morrow-Jones. Amount: \$8,000.

“Exurban regional change program,” Funding received from Project Reinvent and OSU Swank Program in Rural-Urban Policy, 2000. Principal Investigators: Jeff Sharp and Elena Irwin. Amount: \$37,000.

“Exurban regional change program,” Funding received from the OSU Agro-Ecosystems Management Program, 2000. Principal Investigators: Jeff Sharp and Elena Irwin. Amount: \$18,000.

“Assessing the role of public services in households’ relocation decisions,” Funding received from the OSU Committee on Urban Affairs, 2000. Principal Investigator: Elena Irwin. Amount: \$17,000.

“Moving and staying among American homeowners: Implications for regional growth and governance,” Funding received from OSU Committee on Urban Affairs, 2000. Principal Investigators: Hazel Morrow-Jones and Elena Irwin. Amount: \$17,000.

“To move or not to move: Household relocation decisions and causes of suburbanization.” Funding received from the University Seed Grant Program, 2000. Principal Investigator: Elena Irwin. Amount: \$20,000.

“Understanding the links between policy and patterns of land use change in urbanizing watersheds: A spatial economic model of land use conversion.” NOAA/Ohio Sea Grant, 2000/2002. Principal Investigator: Elena Irwin. Amount: \$64,000.

“Predicting patterns of land use change: A spatial economic model of land use conversion.” Seed funding received from Environmental Policy Institute, OSU, 1999. Principal Investigator: Elena Irwin. Amount: \$7,000.

### **Students Supervised**

Collins, Laporchia. Three Essays Examining Household Demand for Healthy Foods. PhD Thesis. July 2016.

Baron, Aneil. PhD Thesis. Three Essays on the Applications of Housing Transactions. PhD Thesis. July 2016.

Irwin, Nicholas. Essays on Environmental Regulation and Urban Redevelopment. PhD Thesis. December 2015.

Zhang, Wendong. “Three Essays on Land Use, Land Management, and Land Values in the Agro-Ecosystem.” PhD Thesis. July 2015.

Konar, Avishek. “The Importance of Non-Pecuniary Factors and Heterogeneity of Farmers in Tillage Choices.” PhD Thesis. January 2015.

Gnagey, Matt. “Three Essays on Residential Land Prices, and Land Use Patterns and Regulations.” PhD Thesis. June 2014.

Valentino, Vincent. June 2013. M.S. Non-thesis option.

Wrenn, Douglas. “Three Essays on Residential Land Development” PhD Thesis. December 2012.

Stephens, Heather. “Three Essays in Regional Economics.” PhD Thesis. June 2012.

Rice, Jamie. “Averting Expenditures of Bottled Water by Rural Households During a Power Outage.” M.S. Thesis. December 2012.

Fath, Linnae. “Measuring the Economic Benefits of Water Quality Change: Literature Review and Meta Analysis.” Non-thesis M.S. December 2010.

Bayoh, Isaac. “Accounting for Endogeneity and Spatially Correlated Errors in Hedonic Analyses with an Application to the Effects of Livestock Operations on Residential Property Values.” PhD Thesis. May 2010.

Chen, Yong. "Three Essays on the Interaction between Regional Development and Natural Amenities." PhD Thesis. July 2009.

Ara, Shihomi. "The Influence of Water Quality on the Demand for Residential Development around Lake Erie," PhD Thesis. May 2007.

John, Mauricia. "Natural Amenities and Population Growth Rates," Non-thesis M.S. May 2006.

Miyata, Takeshi. "A Simultaneous Model of Residential Zoning and Rural Land Conversion." M.S. Thesis. June 2005.

Moreno, Rocio. "The Role of Spatial Externalities and Income in Residential Development Patterns." M.S. Thesis. August 2004.

Ozturk, Erdogan. "Accounting for Space in Intrametropolitan Household Location Choices." Ph.D. Dissertation. June 2003.

Bayoh, Isaac. "Estimating the Determinants of Household Residential Location Choice Using a Multinomial, Discrete Choice Model," M.S. Thesis. 2001.

Carrion, Carmen. "A Spatial Economic Model of Residential Land Use Conversion," M.S. Thesis. June 2001.

Current students: Matthew Gnagey (PhD); Wendong Zhang (PhD); Avishek Konar (PhD); Nicholas Irwin (PhD); LaPorchia Collins (PhD).

### **Technical Reports / Bulletins**

Zhang, Wendong; Irwin, Elena; Ward, Barry, "Trends and Determinants of Farmland Sale Prices in Western Ohio 2001– 2010". Edited by: CFAES. Forthcoming. OSU Extension Bulletin.

Irwin, Elena G., Nicholas Irwin, Jay Martin, Linnae Fath, Mark D. Partridge. "The Benefits and Costs of Constructed Wetlands for Improving the Water Quality of Selected Ohio Lakes." Draft.

Burnett, E.A., R. S. Wilson, B. E. Roe, G. Howard, E. G. Irwin, W. Zhang, and J. Martin. 2015. Farmers, phosphorus and water quality: Part II. A descriptive report of beliefs, attitudes and best management practices in the Maumee Watershed of the western Lake Erie Basin. Columbus, OH: The Ohio State University, School of Environment & Natural Resources

Irwin, Elena G. and Jill K. Clark. "The Local Costs and Benefits of Wal-Mart," Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, February 2006. Online at: <http://www.aede.osu.edu/programs/ComRegEcon/walmart.htm>

Clark, Jill K. and Elena G. Irwin. "Retail Market Analysis: Richland County, City of Mansfield, City of Shelby, City of Ontario, Village of Lexington, and Main Street Mansfield." Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, December 2004.

Clark, Jill K. and Elena G. Irwin. "Retail Market Analysis: The City of Ashtabula." Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, September 2004.

Clark, Jill K. and Elena G. Irwin. "Retail Market Analysis: Ashtabula County." Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, September 2004.

Clark, Jill K. and Elena G. Irwin. "Retail Analysis: New Richmond, Ohio." Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, June 2004.

Clark, Jill K. and Elena G. Irwin. "Retail Market Analysis: City of Oxford, Ohio." Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, June 2004.

Clark, Jill K. and Elena G. Irwin. "Retail Market Analysis: London, Ohio." Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, October 2003.

Clark, Jill K., Jeff Sharp, Elena G. Irwin, and Larry Libby. "Growth and Change at the Rural-Urban Interface: An Overview of Ohio's Changing Population and Land Use." Exurban Change Project Report, March 2003.

Irwin, Elena G. and Jason Reece. "Ohio Urbanization Trends: Tracking Ohio's Urban Growth and Land Use Change," The Exurban Change Project Report Number EX-4, August 2002.

Reece, Jason and Elena G. Irwin. "Retail Market Analysis: Logan, Ohio," Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, May 2002.

Reece, Jason and Elena G. Irwin. "Land Cover in Ohio's Townships: An Analysis of Township Land Cover and Population Change." The Exurban Change Project Report Number EX-3, March 2002.

Irwin, Elena G. and Jason Reece. "Retail Market Analysis: Mechanicsburg, Ohio," Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, February 2002.

Irwin, Elena G. and Jason Reece. "Retail Market Analysis: Marietta, Ohio," Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, September 2001.

Irwin, Elena G. "Retail Market Analysis: St. Paris, Ohio," Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, July 2001.

Irwin, Elena G. and Jason Reece. "Retail Market Analysis: Monroe County, Ohio," Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, July 2001.

Irwin, Elena G. and Jason Reece. "Retail Market Analysis: Noble County, Ohio," Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, July 2001.

Irwin, Elena G. and Erdogan Ozturk. "Retail Market Analysis: Van Wert City, Ohio," Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, September 2000.

Irwin, Elena G. "Explaining Sprawl in Exurban Areas: The Role of Open Space." Community Economics Briefing, OSU AEDE Regional and Community Economics Website, December 1999.

Irwin, Elena G. "Introduction to Using GIS as an Economic Development Tool: An Introductory Guide for Community and Economic Development Practitioners." Training Manual, October 1999.

Irwin, Elena G. "Using Geographic Information Systems (GIS) in Economic Development: An Introduction to Applications, Terminology, and Software." Community Economics Briefing, OSU AEDE Regional and Community Economics Website, September 1999.

Irwin, Elena G. and David S. Kraybill. "The Costs and Benefits of New Residential Development." Community Economics Briefing, OSU AEDE Regional and Community Economics Website, August 1999.

### **General Press Articles and Interviews**

Irwin, Elena G., Douglas Wrenn (2012). "Developing Spatially Disaggregate Models of Land Change for Policy Simulation." UGEC Viewpoints, No. 8. November, 2012. Published by the Urbanization and Global Environmental Change Project, International Human Dimensions Programme.

"Sprawl Continues to Gobble Up Land," Dec 07-Jan 08. Interview on urban sprawl results published in PNAS Dev 2007, reported by United Press International ([http://www.upi.com/NewsTrack/Science/2007/12/18/study\\_us\\_urban\\_sprawl\\_still\\_increasing/5781/](http://www.upi.com/NewsTrack/Science/2007/12/18/study_us_urban_sprawl_still_increasing/5781/)), Science Daily (<http://www.sciencedaily.com/releases/2007/12/071217171404.htm>), Conservation Magazine (<http://journalwatch.conservationmagazine.org/2007/12/21/seeing-the-wood-for-the-trees/>), Environmental News Network (<http://www.enn.com/ecosystems/article/27647>) and other online science news sites. Also featured on National Science Foundation's website ([http://nsf.gov/news/news\\_summ.jsp?cntn\\_id=110911&org=NSF&from=newsField](http://nsf.gov/news/news_summ.jsp?cntn_id=110911&org=NSF&from=newsField)).

Interview for "Boxed In?" (article on big-box retail development). Columbus CEO Magazine, December 2007. <http://www.columbusceo.com/article2.html>

"Seeing Clean Water as a Home – Buying Amenity in Ohio." *Coastal Services*, May/June 2007. Online: <http://www.csc.noaa.gov/magazine/2007/03/article1.html> .

"Hot Commodity: Cleaner Water Increases Lake Erie Waterfront Property Values," by Jill Jentes Banicki, Ohio Sea Grant Program's *Twinline*, June 2007. Also featured by the National Oceanic and Atmospheric Administration (NOAA) , *In the Spotlight*: [http://www.oar.noaa.gov/spotlite/2007/spot\\_hotcommodity.html](http://www.oar.noaa.gov/spotlite/2007/spot_hotcommodity.html).

"New Wal-Mart in town? Ohio State University study shows community impact likely to be mixed," *National Association of Counties (NaCo) Magazine*, Summer 2006. Online: <http://www.naco.org/>.

### **Selected Outreach Presentations**

"The Sustainable Economy: Challenges and Opportunities." Presented at the OARDC/OSU Renewable Energy Workshop, Wooster OH, November 12, 2014.

"Sustainability Science for Materials Overview," Presented at the Bioproducts World 2014 Showcase, Columbus, OH October 6, 2014.

"Defining Urban and Urban Sustainability," Presented at OSU Extension in the City Workshop, Columbus OH, August 21, 2014.

"A Sustainability Science Approach to Lake Erie: Assessing the Linkages and Trade-Offs between Agricultural Land Management and Lake Ecosystem Services." Presented at Stone Laboratory, Gibraltar Island, Lake Erie, July 10, 2014.

Invited panelist, "The Age of Sustainable Development," Keynote Address by Jeffrey Sachs, Provost's Discovery Themes Inaugural Lecture and COMPAS Spring Conference, April 4, 2014.

"What's the Bottom Line? Incentives for Getting Businesses to Work for Water Sustainability." Invited talk given as part of the Waters for Americas Tour, Ohio State University, February 11, 2014.

"The Trends and Determinants of Western Ohio Farmland Values 2001 – 2010," Ohio Chapter American Society of Farm Managers and Rural Appraisers Annual Meeting, Columbus OH, January 26, 2014.

"Water Quality: State and National Concerns and Consequences," Panelist, Farm Science Review. September 17, 2013.

"Sustainability, Smarter Cities and Big Data" Panelist, Fisher College of Business. Ohio State University. Columbus, OH. October 1, 2013.

"Is Sprawl Dead?" Invited presentation to be given at the 2009 McSweeney Land Use Planning Conference, September 2009.

"The Local Costs and Benefits of Wal-Mart." Presentation given at the 2006 County Commissioners Days, August 28, 2006; Ohio Association of County Commissioners Annual Meeting, June 2006; AEDE Extension Update, January 25, 2006.

"Farms, Factories, Fish and Sprawl: A Recent History of Land Use and Water Quality in the Lake Erie Region." Presentation with Jeff Reutter given at "The Future of Ohio's Lake Erie Basin: Balancing Land Use and Water Quality," Lorraine Co. Community College, December 1, 2005.

"Trends, Causes and Impacts of Growth in Rural-Urban Areas." Presentation given at the 2004 Planning and Zoning Tools for Land-Use Management Workshop, Hamilton County, OH, June, 2004.

"Are You Ready for a Change? Trends, Causes, Impacts of Growth in Rural-Urban Areas." Keynote address given at the 2003 McSweeney Land Use Planning Conference, November 2003.



“Who’s Ready for Change? Ohio’s Population and Land Use in Transition.” Presentation given at the 2003 County Commissioners’ Days, August 2003.

“Using GIS to Model Patterns of Rural-Urban Land Use Change.” Presentation given at the 2003 Ohio Geospatial Technologies Conference for Agriculture and Natural Resources, Columbus, OH, March 24-26, 2003.

“Land Development at the Rural-Urban Interface: Trends, Causes, and Impacts.” Presentation given at the National American Society of Farm Managers and Rural Appraisers (ASFMRA) annual meeting, Louisville, KY, December 2002.

“Urbanization Trends in Ohio.” Presentation given at the Annual Planning and Zoning Workshop, Dayton, OH. Sponsored by the Miami Valley Ohio Planning Commission, December 2002.

“Growth at the Rural-Urban Fringe: Causes, Consequences, Responses.” Presentation given to members of the Ohio Farm Bureau Federation, NeighborConnection Bus Tour 2002, July 2002 (joint with Jeff Sharp).

“Low Density Development in Ohio: Trends and Impacts.” American Society of Farm Managers/Rural Appraisers, Ohio Chapter, May 2002 (joint with Jason Reece).

“The State of Sprawl in Ohio.” Presented at the Ohio Urban University Program’s Policy Forum, Columbus, OH, February 2002 (joint with Jason Reece).

“Retail Market Analysis for Mechanicsburg, OH,” Presentation to the Mechanicsburg economic development committee, January 2002 (joint with Jason Reece).

“Hedonic Methods,” Presentation to participants in the Benefit-Cost Analysis and Ohio’s Environment Workshop, November 13, 2001.

“Overview of Retail Market Analysis.” Presentation to Community Development Extension Agents, November 9, 2001.

“Population, Land Use, and Transportation in Ohio,” Presentation at the Simply Living Conference, October 2001.

“Retail Market Analysis for Monroe County, OH,” Presentation to the Monroe County economic development committee, July 2001.

“Retail Market Analysis for Noble County, OH,” Presentation to the Noble County economic development committee, July 2001.

“Overview of Central Ohio Growth and Change,” Presentation at the Simply Living Conference, October 2000 (joint with Jeff Sharp).

“Predicting Population Changes in the Proposed Darby Wildlife Refuge.” Presentation to the proposed Darby National Wildlife Refuge stakeholders group, July, 2000.

“Retail Market Analysis with GIS,” Presentation given at the Northwest District In-service for Community Development agents, January 2000.

“U.S. Patterns of Development: Are We Consuming Too Much Land?” Keynote talk given at the Seneca County Regional Planning Commission Annual Meeting, January 2000.

“Changes in Exurban Land Use Patterns: The Role of Open Space,” Presentation given at the Southwest Extension District In-Service, June 2000 and at the Extension Land Use Team meeting, December 1999.

“Introduction to GIS and Applications in Community Development,” Presentation given to OSU Community Development Extension agents, Columbus, OH, November 1999.

“Introduction to Retail Trade Area Analysis for Champaign County,” Presentation given to the St. Paris economic development committee, St. Paris, OH, November 1999.

"The Costs and Benefits of Development," Presentation given at the 1999 Ohio State University Extension Land Use conference, Columbus, OH, June 1999 (joint with David Kraybill).

"Community Economic Indicators for Washington County," Presentation given to Washington County "Take Charge" community group, Washington County, OH, June 1999.

### **Professional Activities**

Member, Board of Directors, Association of Environmental and Resource Economists, 2015-current.

Member, National Science Foundation Advisory Committee for Environmental Research and Education subcommittee on Sustainable Urban Systems, February 2017-current.

Member, US EPA Board of Scientific Councilors (BOSC) Subcommittee for the Sustainable and Healthy Communities, Sept 2014-June 2016.

Member, National Research Council Land Change Modeling Committee, 2011-2012.

Associate editor, 2010 – 2013. American Journal of Agricultural Economics

Councilor, 2010-2012. North American Regional Science Council

Editorial board member, Letters in Spatial and Resource Science

Editorial board member, International Regional Science Review

Reviewer for the following economics journals: American Journal of Agricultural Economics, Computers, Environment and Urban Systems, Ecological Economics, Land Economics, International Journal of Regional Science, Journal of Economic Dynamics and Control, Environmental and Resource Economics, Journal of Economic Geography, Journal of Environment and Development Economics, Journal of Environmental Economics and Management, Journal of Law and Economics, Journal of Public Economics, Journal of Real Estate and Finance, Journal of Regional Analysis and Policy, Journal of Urban Economics, Papers in Regional Science, Regional Science and Urban Economics, Review of Agricultural Economics.

Reviewer for the following interdisciplinary journals: Agriculture Ecosystems and Environment, Ecosystems, Ecological Modeling, Growth and Change, Landscape and Urban Planning, Landscape Ecology, Proceedings of the National Academy of Sciences, Urban Studies.

Other reviewer activities: NSF Geography and Regional Science Program, NSF Coupled Human-Natural Systems Program, Handbook of Computational Economics, Web of Regional Science.

NSF Panelist for the following programs: Innovations at the Nexus of Food, Energy and Water (INFEWS) Tract 3 Innovative Solutions, Coupled Human-Natural Systems, Geography and Spatial Sciences, LTER Review Team.

Professional memberships: American Agricultural Economics Association; Association of Environmental and Resource Economists; North American Regional Science Council; Regional Science Association International.